so that a population of cells comprising avian EG cells is obtained.

14. (Four Times Amended) A method of producing chimeric avians comprising:

(i) isolating primordial germ cells (PGCs) from an avian;

(ii) culturing the PGCs in the absence of a feeder layer in a tissue culture medium containing at least the following growth factors;

(1) leukemia inhibitory factor (LIF),

(2) basic fibroblast growth factor (bFGF),

(3) stem cell factor (SCF) and

(4) insulin-like growth factor (IGF)

for a sufficient time to produce embryonic germ (EG) cells;

(iii) transferring cells produced by step (ii) comprising said EG cells into a recipient avian embryo; and

(iv) obtaining a germline and somatic cell chimeric avian.

25. (Thrice Amended) A method of producing germline chimeric avians comprising:

(i) isolating primordial germ cells (PGCs) from a Stage XII-XIV avian embryo;

(ii) maintaining said PGCs for a period of at least fourteen days in a tissue culture medium containing at least the following growth factors:

(1) leukemia inhibitory factor (LIF),

(2) basic fibroblast growth factor (bFGF),

(3) stem cell factor (SCF) and

(4) insulin-like growth factor (IGF);

(iii) transferring PGCs produced by step (ii) into a recipient avian embryo; and

(iv) obtaining germline chimeric avians.

26. (Four times Amended) A method of producing germline and somatic cell chimeric avians which comprises:

(i) isolating primordial germ cells (PGCs) from a Stage XII-XIV avian embryo;

(ii) maintaining said PGCs in a tissue culture medium containing at least the following growth factors:

(1) leukemia inhibitory factor (LIF),

(2) basic fibroblast growth factor (bFGF),

(3) stem cell factor (SCF) and

(4) insulin-like growth factor (IGF),

for a sufficient time to produce embryonic germ (EG) cells;

(iii) transferring cells produced by step (ii) comprising said EG cells into a recipient avian embryo of the same species as the avian used to obtain said isolated PGCs;

(iv) allowing said recipient avian embryo containing said transferred EG cells to develop into a germline and somatic cell chimeric avian.

27. (Thrice Amended) A method for producing avian embryonic germ (EG) cells comprising:

(i) isolating primordial germ cells (PGCs) from a Stage XII-XIV avian embryo;

(ii) culturing said PGCs for a period of at least fourteen days in tissue culture in the absence of a feeder layer in a culture medium comprising:

(1) leukemia inhibitory factor (LIF),

(2) basic fibroblast growth factor (bFGF),

(3) stem cell factor (SCF) and

(4) insulin-like growth factor (IGF)

so that a population of cells comprising avian EG cells is produced.

28. (Thrice Amended) A method for producing a germline chimeric avian comprising:

(i) isolating primordial germ cells (PGCs) from a Stage XII-XIV avian embryo;

(ii) culturing said PGCs for a period of at least fourteen days in tissue culture in the absence of a feeder layer in a culture medium comprising:

(1) leukemia inhibitory factor (LIF),

(2) basic fibroblast growth factor (bFGF),

(3) stem cell factor (SCF) and

(4) insulin-like growth factor (IGF);

(iii) transferring said PGCs produced by step (ii) into a recipient avian embryo of the same species as the avian used to obtain said isolated PGCs;

(iv) allowing said recipient avian embryo containing said transferred PGCs to develop into a germline chimeric avian.

29. (Thrice Amended) A method for producing a germline chimeric avian comprising:

(i) isolating primordial germ cells (PGCs) from a Stage XII-XIV avian embryo;

(ii) culturing said PGCs for a period of at least fourteen days in tissue culture in the absence of a feeder layer in a culture medium comprising:

(1) leukemia inhibitory factor (LIF),

(2) basic fibroblast growth factor (bFGF),

(3) stem cell factor (SCF) and

(4) insulin-like growth factor (IGF);

(iii) transferring said PGCs produced by step (ii) into a recipient avian embryo of the same species as the avian used to obtain said isolated PGCs; and

(iv) allowing said recipient avian embryo containing said transferred PGCs to develop into a germline chimeric avian.

30. (Thrice Amended) A method for producing germline or somatic cell chimeric avians comprising:

(i) isolating primordial germ cells (PGCs) from a Stage XII-XIV avian embryo;

(ii) culturing said PGCs for a period of at least fourteen days in tissue culture in the absence of a feeder layer in a culture medium comprising:

(1) leukemia inhibitory factor (LIF),

(2) basic fibroblast growth factor (bFGF),

(3) stem cell factor (SCF) and

(4) insulin-like growth factor (IGF),

for a sufficient time to produce embryonic germ (EG) cells;

(iii) transferring said cells produced by step (ii) comprising EG cells into a recipient avian embryo of the same species as the avian used to obtain said isolated PGCs; and

(iv) allowing said recipient avian embryo containing said transferred EG cells to develop into a germline or somatic cell chimeric avian.